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Difficult Europeans: NATO and Tactical/Non-strategic Nuclear Weapons, Past and Present

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Abstract.

The Soviet development of the capacity to strike American soil in retaliation for any American nuclear use in defence of its European NATO allies plunged the Atlantic Alliance into a profound crisis in the 1960s. Strategists on both sides of the Atlantic feared that in future the USA would be more reluctant to use its nuclear weapons to defend Europe. Several European states felt the need to develop their own or collective European nuclear weapons free from the veto power of the USA. NATO would have fallen apart had it not been for American and British deployments of tactical (or non-strategic) nuclear weapons on allied territory, the joint development of strategies for their use in the Nuclear Planning Group, and their virtual application in NATO exercises. The French went all the way to acquire their own nuclear arsenal and never fully committed to using it in defence of their allies. Nevertheless, French strategists also argued for a tactical use of nuclear weapons – especially the neutron bomb – to repel Warsaw Pact forces if necessary. Many arguments of the Cold War are valid, but acquire new dimensions with the extreme reduction of the British arsenal and questions about British and American commitments to Europe, as the wording of Article 5 of the North Atlantic Treaty do not amount to a nuclear guarantee.

[The Americans] had the peculiar habit in Washington to think that missiles that could only hit Hamburg or Bonn or Frankfurt or London or Paris for that matter, ought to be regarded as tactical affairs and not as strategic. They had the peculiar habit of calling strategic only such weapons which could hit their own soil and their own cities and I said to them well the first . . . so-called battlefield nuclear weapons which hits people on German soil for the German nation is a strategic event.

West German Chancellor Helmut Schmidt, 1987¹

Debates over tactical nuclear weapons, and particularly debates regarding their role in deterring aggression at conventional and strategic levels, did not finish with the end of the Cold War. The North Atlantic Treaty Organisation [NATO] and its constituent parts continue to grapple with how best to deter Russia and reassure allies, especially along NATO's eastern border.² For these reasons, NATO could revisit the question of tactical nuclear weapons in Europe. In other parts of the world, too, nuclear weapons are active issues. With this in mind this analysis of Europe's dilemmas over tactical nuclear weapons during the Cold War can provide some guidance based

on Europe's historical experiences. In arguing for retaining American non-strategic nuclear weapons [NSNW] in Europe, Petr Suchy and Bradley Thayer have identified five reasons for the desirability of such weapons:³

- They strengthen deterrence by holding out the possibility of denying an adversary physical advances into NATO territory.
- They may deter an adversary from using his own NSNW.
- They bridge the gap between conventional forces and strategic nuclear weapons.
- If used, they would be used for actual military destructive purposes, "tactically", a role that previously made them known as Tactical Nuclear Weapons [TNW].⁴
- They are a symbol of United States commitment to Europe's defence.⁵

It is important to note that Article 5 of the North Atlantic Treaty does not constitute a nuclear guarantee, as signatories merely state their determination, to take such action as each individually "deems necessary" on the day if allies are attacked.⁶ To create at least the option of nuclear use, and a visible link between this option and the defence of Europe, US nuclear weapons have been stationed in Europe since the Berlin crisis of 1948/1949. Suchy and Thayer conclude by pleading for the continued stationing of American NSNW in Europe, arguing that several of these reasons retain validity. This exegesis analyses the origins of these arguments.

Looking back at the Cold War, debates within NATO primarily revolved around the possible use of TNW/NSNW. Apart from demonstrating the limits of faith in the alliance based on the willingness of any government to risk its nation's survival for collective deterrence, the debates revolved around reasons similar to Suchy and Thayer's. Largely, the following questions capture their essence:

- I. If unable to defend with purely "conventional" weapons, would one be prepared to fight geographically restricted nuclear war in Europe rather than surrender to an invasion by the Warsaw Pact states? The use of nuclear weapons in such a geographically restricted way was "tactical nuclear use", hence the term *Tactical Nuclear Weapons*.
- II. Did NATO need a "seamless garment" of nuclear weapons, with reaches from the battlefield alone to deep strikes into Soviet territory, to demonstrate the credibility of NATO's deterrent posture?⁷ A variation of this question was whether NATO needed somehow to counter-balance quantitatively and qualitatively all nuclear weapons in the Soviet arsenal.⁸
- III. Could TNW use somehow end a war, short of battling with the Warsaw Pact forces, and without escalating to all-out nuclear war? NATO's "nuclear theologians" came up with the idea of a "warning-shot" – or "shot across the bows" – to signal willingness to escalate to nuclear war, yet in the hope that this would restore deterrence and lead the adversary to break off the attack.
- IV. If the thought of defending NATO Europe with TNW that had many times the explosive yield and fall-out of Hiroshima and Nagasaki was unacceptable, was there a less destructive alternative form of nuclear weapons?
- V. (a) Was it desirable to have *American* "Theatre Nuclear Forces"⁹ based on European soil, assuming that Americans would be more likely to use them than "strategic" nuclear weapons stationed in America – or at sea? And how to ensure that the Americans did not use them either too early, too late, or on targets of which the Europeans would not approve?
- (b) Was it more credible to have *European* nuclear weapons based on European soil, independent of an American veto? If the latter, to what extent were European nuclear

weapons states willing to share the control or even decisions on the targeting of these weapons with other Europeans? In other words, would anybody but the French see French nuclear weapons as a more reliable deterrence to a Soviet attack against West Germany than American ones?

Sketched below are European answers to these questions. For reasons of space, there is selective concentration on Cold War arguments put forward in Britain, France, and West Germany, without any pretence of having covered all views put forward in these three countries.

Theme (I): TNW in NATO Europe in the Cold War

To set these in context, from its formation in 1949, NATO constituted a *defensive* grouping backed by American nuclear weapons intended as a deterrent against aggression by the Soviet Union and its manpower-rich satellites – from 1955 onwards, the Warsaw Pact.¹⁰ There was thus never any question in NATO of using TNW for conquest. Under President Dwight Eisenhower’s “New Look” policy, battlefield weapons were to supplement NATO’s conventional forces for deterrence of or defence against Warsaw Pact aggression. With the Warsaw Pact perceived in the West as commanding a massive numerical superiority in conventional forces over NATO, the United States supplied a range of nuclear weapons as a cost-effective military counter-weight. By early 1961, approximately 3,900 American nuclear weapons were on European soil; by May 1965, the figure had grown to 5,950; by September 1966 around 7,000; and by 1968, where it peaked, 7,161. In 1980, America unilaterally withdrew 1,000 warheads, then all atomic demolition munitions, and eventually surface-to-surface missiles [SSM] of the shortest ranges.¹¹ These two categories also counted as TNW, as they complemented American “strategic” nuclear forces, i.e. land based missiles in the United States, bombs on American bomber forces, and submarine-based *Polaris* missiles. American missiles based on European soil – referred to as Theatre Nuclear Forces – with a range that included the western Soviet Union, were seen as something in-between the categories of *tactical* and *strategic*. Successively called Medium-Range and then Intermediate-Range Nuclear Forces, America could have used all these weapons in *extremis* against circa 1,860 Communist Bloc targets through the Single Integrated Operational Plan, which would easily have resulted in several hundreds of millions of deaths.¹² Implementation would only occur if NATO had to fend off such an attack from the Warsaw Pact conventionally or with TNW.

European governments generally welcomed the stationing of American nuclear weapons on European soil. The assumption shared by all NATO member-state governments and expressed both in public and secret NATO documents and declarations was that these weapons strengthened deterrence of any Warsaw Pact aggression or, should that fail, help NATO fend off a Warsaw Pact attack. Nevertheless, since the late 1950s, there were anti-nuclear movements in several NATO countries and, when in opposition, even some major political parties demanded the abolition of nuclear weapons either through negotiated multilateral disarmament or even through unilateral nuclear divestment. Obviously, it also meant opposing the deployment of American nuclear weapons in Europe. This opposition, coupled with endemic anti-Americanism in some quarters – by the far Left or extreme nationalists – remains the backdrop to this issue during the Cold War.

Theme (II): All ranges of nuclear weapons, and the need to counterbalance the Soviets?

First deployed in Europe in the 1950s were American short-range – “battlefield” – TNW. Intermediate-Range SSM – *Thor* in the Britain, *Jupiter* in Turkey and Italy, and *Mace* and *Pershing* in Germany – complemented them between 1960 and 1963. Of these, *Thor* and *Jupiter* could target the Soviet Union. Even so, they were often still referred to by Americans as “tactical”, as they were stationed “in theatre”, that is in Europe rather than the United States.

West Germany did not deploy *Thor* and *Jupiter* due to Chancellor Konrad Adenauer's political scruples about targeting the Soviet Union from German soil, although early on there was talk of an Intermediate or Medium Range missile to be stationed in Germany.¹³ Instead, West Germany bought *Pershings*, deployed from 1962 with a range only of about 400-450 kilometres – less than the distance to the Soviet borders.¹⁴ As early as 1964, negotiations got under way for West Germany to acquire a new variety of *Pershings* – *Pershing I*, later known as *Pershing Ia* – with a slightly longer range of around 700 kilometres allowing targeted locations well beyond East Germany and yet still well short of Soviet territory.¹⁵ The warheads remained in American custody. In addition, from 1962, 96 first-generation American *Mace B* cruise missiles were deployed in West Germany fully under American control. With a range of up to 2500 kilometres, they were capable of reaching Moscow and Leningrad but were withdrawn in 1969.¹⁶ Thereafter, *Pershings* were the longest-range missiles deployed in West Germany, but, to repeat they could not reach Soviet territory.

From 1969, Soviet-American arms control focused on Strategic Arms Limitation Talks [SALT], and multilateral talks on Mutual and Balanced Force Reductions focused on conventional arms. The Bonn Government felt particular concern about neglect of the “grey area” between them and strategic nuclear forces – TNW.¹⁷ Meanwhile West German strategists began to express concern about what they saw as a gap in the medium ranges of the Western arsenal.

West Germans feared that having only American-based strategic nuclear or battlefield nuclear weapons for use against Warsaw Pact forces that had already penetrated NATO territory – and thus *on* NATO territory, that is in West Germany, but also Norway, Turkey, and Greece – signalled the existence of a “fire-break” between the United States and – especially – German soil. In 1965 if not earlier, German strategists made the argument for a continuous spectrum – later referred to as a “seamless garment” – of nuclear weapons,¹⁸ a theme reiterated frequently in the late 1970s and early 1980s. They pleaded for acquiring TNW to bridge the gap.¹⁹ The British supported this request, putting it to the Americans in August 1977 in a famous letter drafted by Michael Quinlan, the key civil servant in charge of nuclear matters in the Ministry of Defence intermittently until the mid-1990s, and signed by the defence secretary, Fred Mulley.²⁰

Although NATO's Supreme Headquarters Allied Powers Europe periodically engaged in a “Nuclear Weapons Requirements Study”, before the mid-1970s there had been no comprehensive evaluation of its nuclear stockpile. The approximately 7,300 TNW assigned to NATO, mainly by America,²¹ were believed necessary for the “assurance of destruction” of both mobile and fixed targets. The ratio of battlefield targets to strike forces was estimated at around 2:1, with about 876 warheads – 12 percent – allocated to nuclear surface-to-air missiles and nuclear depth charges or bombs. There were 1,400 “critical targets”, 1,000 of which were to be covered by NATO-assigned forces – the rest by American strategic forces. As both the United States and Soviet Union had sufficient strategic systems to serve their national targeting plans,

the number of TNW was considered by Britain's Chiefs of Staff to be "more a matter of political than military judgement".²²

Britain's contribution to NATO's deterrence posture consisted of 140 *Vulcan* bombers that could reach Moscow, with *WE-177* gravity bombs plus, from 1968-1969, four submarines with *Polaris* missiles with a maximum of two likely on patrol at any time.²³ The Americans committed 900 Inter-Continental Ballistic Missiles, 350 submarine-based *Polaris* missiles, and 1,130 long- and medium-range bombers to NATO's defence.²⁴ Of these, the United States Air Force's 170 *F-111*s, all based in Britain, could reach the Soviet Union. In the early 1980s, *Tornados* would replace the *Vulgans*, which had been developed during the 1950s. The former had a much shorter range and could not target the Soviet homeland without in-flight refuelling.

France did not assign its nuclear forces to NATO command; it withdrew from NATO's integrated military structure in 1966, jealously guarding its own nuclear forces for the defence of its "vital interests" alone – a term left deliberately vague. Occasionally, to deflect criticism by its European NATO allies, Paris would vaguely claim that French nuclear weapons by virtue of being *in Europe* extended deterrence *to Europe*. However, until today, France does not interpret its treaty commitments enshrined in the 1948 Brussels treaty – confirmed in 1954 and folded into the EU's 2010 Lisbon Treaty – as a commitment to defend its fellow-signatories with nuclear weapons.²⁵

Meanwhile, NATO's intelligence assessment (MC 161/74) of 1974 had emphasised:

that the Warsaw Pact regard nuclear weapons as a normal part of their armoury, which they could use in a pre-emptive role, and that NATO use of nuclear weapons would carry great risk that the Soviet Union, which apparently does not subscribe to a strategy of graduated response, might escalate abruptly in scale, nature of target, area or any combination of these. The possibility should not, however, be discounted that this is what the Warsaw Pact wishes NATO to believe.²⁶

From releases from former Warsaw Pact states' archives, this assessment of their military doctrine appears to be substantially correct.²⁷ Nevertheless, in the 1970s and early 1980s, NATO officials²⁸ generally under-estimated the Pact's commitments to an aggressive nuclear doctrine. Basing themselves on assessments conducted over many years and agreed upon multilaterally, NATO believed that if it

used nuclear weapons, the Soviets would at least initially limit their response to the theatre concerned and that in any conflict in which Warsaw Pact forces became involved they would, while taking all necessary measures to prepare for escalation, probably seek vigorously to limit the conflict and to end it through political means . . . the Warsaw Pact could well respond "in kind" . . . both sides seeking to obtain political or military advantages in preparation for subsequent attempts to seek a political resolution of the conflict but acting with a degree of restraint in view of the risk of escalation. In practise the Warsaw Pact leaders might observe something akin to a doctrine of graduated response . . .²⁹

NATO officials were therefore basing their assessments of the consequences of nuclear use on the tacit belief that both sides would respect "the rules of the game". This was of course not an evidence-based assumption as thankfully no such crisis had occurred.

In any case, London shared Bonn's desire for weapons of all reaches and positions in the NATO arsenal. Quinlan contended that what NATO really wanted was the "capability for deep strike amongst one of its options in its bag of clubs".³⁰ It came forward through an American-led study group within NATO,³¹ which produced the "Integrated Decision Document" and formed the basis for the "Dual Track Decision" of December 1979.³²

The SS-20 and the Dual Track Decision

This Decision had two roots. One was the perceived imbalance of NATO and Warsaw Pact TNW. The *Honest John*, *Sergeant*, and *Pershing Ia* missiles available on the Central Front, together with atomic demolition munitions and nuclear artillery, were quite adequate for British purposes – that nuclear signalling should be as inoffensive as possible and thus primarily on NATO territory. Tactical aircraft – the American *Starfighter* F-104 and later the F-111, based mainly in Britain – suited West German preferences of targeting territory well east of East Germany. In the mid-1970s, the USA stationed shorter range *Lance* SSMs with a range of 70-120 kilometres in West Germany. However, after scrapping the *Thors* and *Jupiters* as part of the secret settlement ending the Cuban Missile Crisis, then *Mace* at the end of the 1960s, NATO's European arsenal did not contain ground-launched missiles that could reach Soviet territory in the way that Soviet SS-4 and SS-5 ballistic missiles could reach Western Europe.

Then from 1976, the Soviet Union deployed a new mobile SSM in Europe: the SS-20 *Saber*. As NATO had no SSMs of the same range, NATO could not have responded symmetrically to Soviet nuclear use of these weapons, which some American and European strategists thought highly problematic – others like Quinlan did not.³³ SS-20 missiles provided the Soviets with the capacity to strike NATO bases pre-emptively. Offensively, they also had the supersonic *Tupolev* Tu-22 bomber and *Sukhoi* Su-24 fighter-bomber, equivalent of the American *F-111*. The British Ministry of Defence noted that “Politically [these systems] have greatly heightened Western public awareness of the big and increasing lead which the USSR has in long-range [Theatre Nuclear Forces] targeted on Western Europe . . . not constrained by SALT [the second Strategic Arms Limitation Talks with the SALT II Treaty signed in June 1979 between the Americans and Soviets]”.³⁴ This provided the strategic context for NATO's December 1979 decision to modernise its long-range in-theatre capability.

The West Germans worried greatly about the on-going modernisation of Soviet Theatre Nuclear Forces.³⁵ West German Chancellor Helmut Schmidt told President Jimmy Carter and his National Security Adviser, Zbigniew Brzezinski:

that given the perspective of the future political weight of these SS-20s it was in my view indispensable, absolutely necessary to include these missiles into the SALT II talks which were under preparation and hadn't really started but which the Carter administration wanted to get going with the [Leonid] Brezhnev administration in Moscow . . .³⁶

In October 1977, in a lecture to the London security community, Schmidt emphasised the need for Western Europe to respond on each level of the “escalation ladder” whether through tactical nuclear weapons, “sub-strategic” forces – like those carried on aircraft or through medium-range missiles – and finally at a strategic level.³⁷ Schmidt thereby set a trap in which he caught himself by claiming there was an *imbalance* of Theatre Nuclear Forces and conventional forces in Europe and arguing for the need for a *balance* of forces.³⁸ The public seized upon an argument involving numbers. It could easily be manipulated to show that, in fact, there was equality if one counted British and French nuclear-armed submarines, the three multiple re-entry vehicles on certain missiles as three, not one, warheads, and so on.³⁹ Moreover, the Soviet Union could show that it had consistently deployed nuclear weapons of this range in Europe

since the early 1960s, and that the SS-20 merely replaced obsolescent missiles.⁴⁰ The linkage between SS-20 and the Euromissiles was thus controversial.

On 12 December 1979, NATO thus decided to “modernise” NATO’s longer range Theatre Nuclear Forces whilst proposing to desist if the Soviet Union withdrew its SS-20 east of the Urals – hence, the “Dual Track”. Achieving the former was to occur by deploying new Intermediate-Range Nuclear Forces in Europe: comprising 108 *Pershing* II ballistic missiles to replace the existing 1,000 American *Pershing* IA, and 464 Ground-Launched Cruise Missiles [GLCMs], each with a single warhead.⁴¹ *Pershing* II had a range of 1,100 miles; the GLCMs 1,500 miles and a promised accuracy measured in tens of metres, a major improvement in precision that would allow its use with greater confidence that a designated target would be hit and reduce collateral damage.

The insistence on parity undermined the subsequent arms control negotiations between the Soviets and Americans by focusing on their respective Intermediate-Range Nuclear Forces, which in 1987 led to a symmetric withdrawal of the American Theatre Nuclear Forces from Europe, and Soviet ones to east of the Urals. Valid or not, the aspiration to some sort of parity is a persistent theme, but by no means one shared by all European strategists.

Theme (III): Last Warning - the Rationale for Pre/Sub/Non-Strategic Nuclear Weapons

A different approach altogether to parity is the idea that the design and if necessary use of nuclear weapons stationed in Europe should be a last warning-shot or “shot across the bows”. This was the other root of the Dual Track decision. From 1949 until the early 1960s, NATO doctrine held that in the event of Soviet-led aggression, NATO would use all its nuclear weapons as soon as possible, under a doctrine of massive retaliation.⁴² From 1968, however, NATO strategists hoped they might not have to take recourse to its entire arsenal, especially city-targeting “strategic” weapons. Instead, it hoped that a “shot across the bows” might lead the aggressor to desist from his attack and agree to an armistice.

An American defence analyst, Warren Amster, first articulated the idea in the mid-1950s that one would want to “reconstitute deterrence” even if it had initially failed. Also known as “intra-war deterrence”, he argued that American first use of nuclear weapons should not aim to defeat the Warsaw Pact, but make it stop in its tracks.⁴³ In 1961, British civil servants in a study known as the Mottershead Report came up with the idea that a first use of nuclear weapons by NATO should not be dominated by military-tactical, battle-winning aims; the political-strategic goal of bringing about an armistice should. The underlying assumption was bold. First, NATO strategy assumed that the Kremlin would not retaliate with nuclear weapons because it did not actually want nuclear war and would see the error of assuming that it might get away with a purely conventional conquest by force. Second, it assumed that, once their forces suffered a nuclear response, Soviet leaders could back down without committing – political – suicide.⁴⁴

NATO’s Nuclear Planning Group [NPG] espoused this concept in 1969 when it adopted the “Provisional Political Guidelines for the Initial Tactical Use of Nuclear Weapons” [PPGs] – the more refined “General Political Guidelines for the Employment of Nuclear Weapons in the Defense of NATO” [GPGs] adopted only in 1986 remained very similar in spirit. Thus also why by the mid-1970s, the number of non-strategic weapons deployed in Europe was considered by the Britain’s Chiefs of Staff to be “more a matter of political than military judgement”.⁴⁵ An NPG study had shown that the introduction of the tactical nuclear weapons then deployed by NATO forces “cannot be counted on to offset conventional weakness”. Defeating aggression by

the numerically superior conventional forces of the Warsaw Pact by using nuclear weapons tactically for military effect was an illusion.⁴⁶ Yet, as British practitioners put it in 1976, “despite the NPG’s valuable work . . . NATO’s Theatre Nuclear Force posture is largely a hangover from the 1950s”.⁴⁷ It took from 1961 until 1969 before NATO adopted the best part of Mottershead Report reasoning and, then until 1979, before deciding to acquire the nuclear weapons needed to implement the preferred British strategy. In the interim almost “twenty years of blind incrementalism” had taken place.⁴⁸

The first delay – 1961-1969 – resulted from difficulty in finding any common denominator or strategic principles for both the Americans and the Europeans. Coupled with it was a growing desire on the part of the American defense secretary, Robert McNamara, and his immediate successors to enhance American security by capping the arms race between the superpowers. Against the background of this preoccupation in Washington, it was all very well for the Europeans to try to edit NATO strategy: the hardware implementation, which only America could provide, simply did not follow.⁴⁹ The second delay – 1969-1979 – is more puzzling as the United States, especially under the influence of Defense Secretary James Schlesinger, supported deploying Intermediate Range Nuclear Forces. Moreover, the technology for more precise targeting was becoming available: the rationale of limited nuclear strikes demanded precision and as little collateral damage as possible so as not to make the other side desperate.

French views

In the meantime, by developing a French bomb, first tested in 1960, with free-fall bombs available from 1964, President Charles de Gaulle patiently pursued his goal of making France independent from an American nuclear umbrella in which he had no confidence. It allowed France to leave the integrated military structure of NATO in 1966. Henceforth Britain was the only European nuclear power with nuclear weapons committed to the Alliance. De Gaulle refused to engage in consultations on the purposes of nuclear use, stressing doctrinal differences on nuclear-use doctrine. He and his chief nuclear strategists, generals Pierre Marie Gallois and Lucien Poirier, stressed their total disagreement with American strategic ideas mooted in the early 1960s that sought ways to defeat a Warsaw Pact assault on NATO Europe by conventional means only. Gallois and Poirier clung to NATO’s older tenet that there could not be any limited – that is, conventional – war with the Soviet Union,⁵⁰ and that nuclear weapons of all sorts and ranges had to be used as early as possible to fend off the numerically superior Warsaw Pact forces. America’s other European NATO allies equally rejected any idea of trying to hold out against the Warsaw Pact with only conventional forces.

If a purely conventional defence of Western Europe was unacceptable and if strategic nuclear-use – the incineration of major Soviet cities – should be avoided in the hope that the conflagration might be stopped short of all-out nuclear war, the question remained as to how NATO would first use nuclear weapons. Here the paradox emerged: *both* NATO’s NPG and, *de facto*, de Gaulle’s chief of staff in the late 1960s, General Michel Fourquet, recoiled from the prospect of a “tactical nuclear battle”. Instead, for Fourquet, the test or warning-shot idea of using nuclear weapons was very attractive, essentially for the same reasons given by Amster, the Mottershead Report, and the PPGs, with only limited military effects.⁵¹ French official circles vehemently denied the convergence of thinking, but it must have been clear to see for all involved in these matters.⁵²

France acquired its own short-range nuclear forces, the mobile *Pluton*, that could move forward towards the inner-German border; deployed from 1974; in 1993, it was supposed to be replaced by the equally mobile *Hadès* with a slightly longer range. The air-delivered standoff missile, Air-Sol Moyenne Portée [ASMP], later complemented these successive short-range SSMs. In keeping with Fourquet's reasoning, the weapons, emphatically called *pre-strategic*, emphasised that they were *not* to be used in attempts to win a battle on the ground with nuclear weapons. The numbers deployed – 200 – however, as the Germans liked to emphasise, pointed more towards a readiness to give battle than to administer a warning-shot. Moreover, the Germans pointed out that *Pluton* and even *Hadès*, fired from France, would have detonated on West German soil – unless brought forward to the inner-German border, in which case they targeted East Germany. Seen from Bonn, they looked rather like battlefield – that is, “tactical” – nuclear weapons than pre-strategic ones.

The French president after 1981, François Mitterrand, eventually reaffirmed that only two forms of use – a “pre-strategic” last warning and strategic city bombing – must exist, a doctrine still upheld today.⁵³ As this concept matched that of the GPGs, divergences at most concerned the numbers needed. In the early 1980s, NATO scenarios exercised biannually in the NATO-wide command post exercise, WINTEX, moved towards limited first use. WINTEX 1979 had foreseen the use of 40 weapons, backed by another 20;⁵⁴ but in WINTEX 1981, the British War Cabinet asked for employment of at most 20 weapons, one-half of what NATO's supreme commander had sought.⁵⁵ At such a small number, British thinking – prevailing in the exercise scenario – coincided with the French declaratory doctrine. NATO eventually settled on a semantic compromise: in the mid-1990s, in the context of negotiations with Russia. It substituted the term “non-strategic nuclear use” for “tactical nuclear use” – instead of the French “pre-strategic”.⁵⁶

It is not without irony that post-Cold War Russia abandoned the Soviet – supposed⁵⁷ – no-first-use doctrine and embraced what it calls “de-escalatory nuclear use”. The difference to NATO's posture again lies in numbers: it seems that Russia would contemplate using far more than the 20-40 missiles mentioned in WINTEX scenarios.⁵⁸

Theme (IV): The Neutron Bomb

If the use of the existing TNW on NATO soil was too horrible to contemplate, was there a technological alternative? An answer emerged in the 1970s with the development of enhanced radiation weapons – the neutron bomb – with significantly less lingering radiation and less immediate blast power: its main effect consisted of short-term radiation lethal to living organisms, able to penetrate protective surfaces. In short, assuming the evacuation of local populations before an enemy invasion, it would have killed invading enemy soldiers leaving a greater proportion of infrastructure intact.

The new precision-guided missile technology of the 1970s made possible the combination of a much reduced blast and radioactive yield with improved accuracy. It gave new life to plans to introduce the neutron bomb, invented in 1958 and first tested by the Americans in 1963, but now proposed for procurement by the Gerald Ford and Carter administrations in the United States during the mid-1970s.

Against this background, Schlesinger put forward his eponymous doctrine with its provision for different targeting options. It roughly coincided with the introduction of France's *Pluton* and aircraft-carried free-fall bombs. Just as nuclear debates within NATO returned to the

theme of greater credibility of deterrence through wider warfighting options, under President Valéry Giscard d'Estaing – 1974-1981 – France espoused a nuclear doctrine aiming to defeat oncoming enemy forces with TNW on the battlefield. Giscard proclaimed in 1976 that the tactical nuclear arsenal was “not just an instrument of deterrence, but also an instrument of battle.”⁵⁹ In latter half of the 1970s, he and his chief of the General Staff, General Guy Méry, clearly wanted tactical weapons in a potential war-fighting role.⁶⁰ It was also clear to French strategists that the 200 *Pluton* were rather too much for a mere “shot across the bows”.⁶¹

Proponents argued that the neutron bomb fitted this war-fighting role and would give French deterrence posture greater credibility.⁶² In one of the rare cases of Western strategists' interest in Soviet doctrine, the French government designated Colonel Marc Geneste to travel throughout NATO to make soundings about the neutron bomb. He drew on available knowledge about Soviet strategy to prove that it would be foolish to forego the option of battlefield use of tactical nuclear weapons if the Warsaw Pact had incorporated them firmly into its strategy.⁶³

The split between supporters and opponents of the neutron bomb cut across the political parties.⁶⁴ Key members of the Gaullist *Rassemblement pour la République* like Jacques Chirac or Léo Hamon were now prepared to contemplate moving away from the signalling doctrine and supported the introduction in quantity of neutron bombs as weapons of “barrage”.⁶⁵ Meanwhile the signalling school made their opposition to any such adulteration of France's doctrine heard.⁶⁶ In early 1978, two decades after the United States, France conducted its first neutron bomb test.⁶⁷ It was thus very embarrassing for Giscard when later in 1978, Carter decided unilaterally to call off the American neutron bomb project.⁶⁸ France publicly fell in line behind the United States and, towards the end of 1978, the French Ministry of Defence denied that France was contemplating the acquisition of neutron bombs.⁶⁹ Giscard and Méry, and later Chirac, now renounced not only the neutron bomb project but the doctrine of the nuclear battle.⁷⁰ A government publication of 1979, written for the armed forces, stated that French nuclear strategy was:

specific to France because it establishes a direct link between the threat to employ or the employment of the tactical nuclear weapon and the unleashing of strategic reprisals. It thus differs from the Russian and American concepts that to the contrary try to dissociate tactical nuclear use from strategic [nuclear use].⁷¹

Then, in August 1981, the new American president, Ronald Reagan, re-opened the option of American neutron bomb production. Several French strategists who initially opposed the neutron bomb changed their opinion in arguments about the greater credibility of a non-strategic nuclear use option, for example Colonel – later General – Guy Lewin, a member of the Centre for Advance Planning and Evaluation,⁷² and General Pierre Gallois.⁷³ In 1982, Mitterrand, spoke in favour of integrating tactical nuclear weapons into conventional forces to make an actual battlefield defence of France more feasible – and hence credible.⁷⁴ Mitterrand ultimately abandoned this idea at German requests, and *Pluton's* successor, *Hadès*, was only briefly deployed, and neutron bomb warheads never fitted. Yet ever since, even after the end of the Cold War, there are claims that France needs tactical nuclear weapons to strengthen its conventional forces.⁷⁵

Theme (V.a): Dual Key Arrangements and Consultation

From America's point of view, there was an advantage in deploying American-owned weapons in, and potentially fired from, NATO Europe. This was always based on the assumption that the Soviets did not want to escalate nuclear war to a strategic inter-continental exchange, and that they would thus not retaliate with nuclear strikes against America. The thinking was that American nuclear weapons stationed in Europe were thus less likely to invite preventive nuclear counter-force strikes against American territory. At the same time, the ability to launch from Europe – with the agreement of Allied host state governments – showed alliance solidarity and the intention of strengthening deterrence.

Some American nuclear weapons in Europe went to NATO countries under “dual key” arrangements with the majority owned and operated by the Americans.⁷⁶ The British, along with several other NATO states, had some of these American-owned TNW with the warheads held under this “dual key” command and control system, with the British also deploying their own TNW in West Germany in the late 1960s and early 1970s. In the 1950s, Britain began equipping the British Army of the Rhine, numbering around 55,000 troops, with American tactical nuclear weapons held in American custody.⁷⁷ These also included battlefield howitzers, deployed in Europe between 1953 and 1991, the *M-31 Honest John* – 1954-1982 – *MGM-5 Corporal* – 1955-1966 – and *MGM-29 Sergeant* – 1963-1977 – all of which by the end of the 1950s were also capable of delivering conventional ordnance or chemical and biological agents.⁷⁸

Although the fully British-owned contribution of nuclear weapons to NATO's arsenal was relatively small, it nevertheless provided that the Americans “consult” the British on nuclear use in the joint targeting arrangements that, in turn, gave London a way to influence the American strategic posture. Moreover, consultation was at the base of all “dual-key” arrangements. Most American nuclear warheads in Europe remained under dual-key arrangements under so-called bilateral Programs of Co-operation and stockpile agreements. After the experiments of the 1950s and 1960s, with pre-delegation abandoned, by the 1970s and 1980s, the United States instead maintained positive control over all of their forces in peace and war with only the American president – and at least one other senior American official – able to release them for use. Arrangements were in place to consult with America's allies – “time and circumstances permitting”. The weapons themselves were subject to the “two-man rule” whereby American personnel could only release the weapons following presidential authorisation through military channels. Additionally, all-American nuclear weapons deployed in Europe were fitted with coded devices known as Permissive Action Links that physically prevented use without authorisation.⁷⁹

In this environment, the Lyndon Johnson Administration wanted to allay feelings in Bonn that West Germany was being “singularised” in view of its exposed geographic position and insufficient protection. To address these issues and decrease pressures from NATO's Non-Nuclear Weapons States, a December 1966 proposal by a special committee of defence ministers led the North Atlantic Council to “approve certain arrangements for nuclear planning”.⁸⁰ Following on, two new policy-making bodies – the Nuclear Defence Affairs Committee and the NPG – were established along with the adoption in 1968 of “flexible response” – in its third form of “flexible escalation” of MC 14/3⁸¹ – with the ensuing 1969 PPGs essentially a compromise strategy borne out of years of heated debate. NATO and the United States periodically re-visited the issue, but the 1969 compromise essentially held until the end of the Cold War.⁸²

When NATO decided to deploy the Euromissiles in 1979, France, outside both the integrated military structure of NATO and the NPG, nevertheless tried to make its influence felt on the subject that was, after all, of concern to Paris. Typically, two views emerged. Some

French strategists wondered whether deploying cruise and *Pershing II* missiles would finally and totally decouple the American strategic nuclear arsenal from Europe and thus *erode* deterrence. Others feared it would make some American nuclear use – from European launch pads – more likely and thus deterrence more credible.⁸³

After the neutron bomb project was finally buried, Geneste and most of its other former defenders favoured American deployment of cruise and *Pershing II* “Euromissiles”,⁸⁴ even though neutron bombs and Euromissiles had very different purposes. Conceived for barrage, the neutron bomb was to fend off the advancing enemy on the battlefield at a range of 30-120 kilometres from French forces – and thus most likely on West German territory; meanwhile Euromissiles were to take out targets well into Warsaw Pact territory.⁸⁵ It was far easier for Paris to support Euromissile deployment – the missiles were neither French nor stationed on French territory – than to take a decision on neutron bomb procurement. In addition, the euromissiles could be recognised as having a mission very like the “last warning-shot” of the French “pre-strategic” forces, particularly airborne ones. There was continuity between Giscard’s and Mitterrand’s support for the Euromissiles.⁸⁶ Mitterrand even felt it appropriate, in 1983, to lecture the German Bundestag on the desirability of Euromissile deployment. When they were scrapped after the 1987 Soviet-American Intermediate-Range Nuclear Forces [INF] Treaty – the French agitated to bring their own air-launched stand-off nuclear missile, the ASMP, to the attention of Europeans who thought this gap in NATO defences pernicious, but without being taken up by any of their neighbours.⁸⁷

Theme (V.b). European Alternatives

Already doubtful of Washington’s willingness to use nuclear weapons to defend European allies, and in pursuit of European integration, the Bonn government in the mid-1950s had supported European co-operative alternatives to an American nuclear defence, alternatives of which both the United States and Britain were deeply suspicious.⁸⁸ The idea underlying the creation of a Multilateral [European Nuclear] Force [MLF] was to give non-nuclear NATO powers access to jointly manned surface ships or a submarine on board with American nuclear weapons.⁸⁹ The existential question that ultimately sank the fleet was whether to launch these weapons against Warsaw Pact targets without American approval. The answer, ultimately, was “no”. Britain and de Gaulle’s France between them scuppered the MLF, as they regarded it dangerous to their respective national interests.⁹⁰

The desire to divert Bonn from the nuclear path was also one of the main drivers for Britain’s NATO policy during this period. Although Adenauer had signed a unilateral declaration in 1954 not to build nuclear weapons as part of the settlement admitting them to the Western European Union and NATO, it did not rule out future repudiation of these self-imposed treaty obligations.⁹¹ The same applied to Italy, Austria, Belgium, and the Netherlands. Bonn was always conscious that the “absence of German possession and control of nuclear weapons was a deficit in West Germany’s ability to guarantee its own security”. Tactical nuclear weapons operated on West Germany’s behalf through NATO – by the Americans and British – in part remedied this deficit.⁹²

Periodically, France advocated other weapons as particularly reassuring for its neighbours, usually when France tried to enlist these neighbours’ financial investment in one of France’s expensive nuclear programmes.⁹³ Thus, some French strategists enthusiastically argued that a French neutron bomb would enhance “European” deterrence strength.⁹⁴ Supporting the

neutron bomb thus usually meant by extension advocating closer links with NATO or at least with strengthened European co-operation. With all other missiles gone from European soil in the 1990s, France again argued that its *Rafale* aircraft with its ASMP was the only system left to fire a last “warning-shot” at oncoming forces. At the time, however, a Russian attack on NATO territory seemed so unlikely that there was no interest in other European states. Revival of this subject may easily occur in the post-2017 context.

Dénouement: from the mid-late 1980s and the end of the Cold War

The irony was that the *dénouement* of the Cold War began with the withdrawal of the Euromissiles, referred to as INF from the mid-1980s, precisely those weapons had become so important to NATO’s strategic compromise and central to its nuclear strategy. Following Mikhail Gorbachev’s emergence as Soviet leader in March 1985, significant disagreement emerged between Reagan and the British prime minister, Margaret Thatcher, over Reagan’s apparent commitment to the ultimate goal of eliminating nuclear weapons. The Soviet-American superpower summit in Reykjavik in October 1986, and the Gorbachev-Reagan declaration that they hoped to work towards a nuclear-free world, seemed a great blow to London’s and Bonn’s defence interests.⁹⁵

At Reykjavik, Reagan proposed eliminating all strategic nuclear forces – bombers, long-range cruise missiles, and ballistic missiles – within five years and strategic ballistic missiles within ten years. Gorbachev counter-proposed the elimination of all strategic forces by the end of that ten-year period. Although the Soviets agreed not to seek further inclusion of British and French deterrents from future INF negotiations, Thatcher’s reaction to Reykjavik was “as if there had been an earthquake beneath my feet”.⁹⁶ The “double zero” option for INF also jarred with the purely military defence interest of West Germany: eliminating weapons of 500-5,500 kilometre reach undermined the GPGs for the first and follow-on use of nuclear weapons by NATO adopted earlier in 1986, which seemed all but forgotten by the Americans by the end of that year!⁹⁷

Whilst Thatcher remained keen to hang on at least to short-range nuclear forces – under 500 kilometres in reach – these were the weapons the Bonn government disliked most, arguing that they “singularised” German territory – and thus Germans – for nuclear war and its effects. The adage of the day was “the shorter the weapons, the deader the Germans”. German Chancellor Helmut Kohl warned in 1987 that there must not be “zones of reduced security” in Europe, when NATO had emphasised solidarity and shared risk for so long.⁹⁸ Thatcher recorded in her memoirs that “this question – the avoidance of another ‘zero’ on SNF [Short-range Nuclear Forces] – . . . was to divide the alliance so seriously in 1988-9”.⁹⁹

The British government was isolated on these issues when the new George Bush Administration in 1989 also placed SNF modernisation on the negotiating table. That summer, the collapse of communism in central and Eastern Europe heralded the end of the Cold War and political events in large measure overtook debates over arms control. After the collapse of communism in Russia, Bush and the new Russian president, Boris Yeltsin, proceeded to negotiate the removal of most NSNW from Europe.

In France in 1987, Mitterrand eventually chose to back the Soviet-American Treaty eliminating the INF, which increased the strains between him and the Chirac government with which the Socialist, Mitterrand, had to have “cohabitation” after a general elections had returned a conservative majority.¹⁰⁰ Mitterrand was strongly criticised from many sides.¹⁰¹ His decision

after the end of the Cold War not to deploy *Hadès* and the decision of the next President, Jacques Chirac, to scrap the system ended the French debate on tactical nuclear weapons.¹⁰² Today, France has four nuclear-powered *Le Triomphant*-class submarines, each capable of firing 16 strategic-range nuclear missiles. In addition, 20 *Rafale* aircraft equipped with ASMP can be used in a non-strategic, last warning-shot role. France continues to refuse any assignment of these weapons to NATO.

The end of the Cold War also brought substantial changes to Britain's non-strategic nuclear forces. American TNWs made available under the "nuclear sharing" or dual-key arrangement were withdrawn from British forces in 1992 when Britain ceased to participate actively in the NATO arrangements under which it had access to American nuclear warheads. By 2007, it removed the entire range of its WE-177 gravity and depth bombs.¹⁰³ Since then, Britain has had only *Trident* nuclear missiles on its four nuclear-powered *Vanguard*-class submarines, capable of firing 16 missiles each, some of which can have reduced yields to enable a non-strategic, last warning-shot role.

This means that other than the French ASMP, the only nuclear weapons for use in such a non-strategic role remaining in Europe today are American. Amongst them are 180 *B-61* nuclear free-fall – gravity – bombs with variable yields ranging from 0.3 to 340 kilotons, kept under American custody in Belgium, the Netherlands, Germany, Italy, and the Middle Eastern NATO member, Turkey. A variety of aircraft can transport them to target, including aircraft of all five countries plus, of course, the United States. Under their "nuclear sharing" arrangements, Washington can still release them to its allies for use in a war. The question is whether NATO consensus in general continues to favour this deployment of American NSNW in Europe, and whether in particular the five European NATO member states will want to continue to host and have access to them.¹⁰⁴

With Russian annexation of Crimea in 2014 and continuing tensions between Russia, NATO's Eastern European members in the Baltic and Eastern Europe, the issue of NSNW in Europe is no longer dormant. Russia's deployment of nuclear capable *Iskander-M* short-range missiles into its enclave of Kaliningrad, sandwiched between Poland and the three Baltic states, would indicate that it sees a role for NSNW in Europe.¹⁰⁵ What lessons Russia and NATO members have learnt from the Cold War dynamics analysed above remains to be seen. This is also true for North Korea and its neighbours, the Middle East, and India and Pakistan.

Conclusion

The argument that one would not want to use nuclear weapons tactically so as not to destroy and irradiate what one wants to defend certainly has retained its force. In the Cold War, Europeans argued for a "seamless garment" or an escalation ladder with all steps – but it used to be thought during the Cold War that more steps than just one were needed between conventional and strategic nuclear forces. Since then, short-range – battlefield – nuclear forces have become taboo, eventually ruling out their usefulness for deterrence by denial.

The Suchy-Thayer argument that TNW/NSNW were needed in Europe to deter Soviet *use* of similar Theatre Nuclear Forces did not actually have much prominence in the Cold War. The reason was three-fold. First, throughout the Cold War, the Soviet Union and Warsaw Pact had a significant conventional superiority over NATO and therefore did not need to take recourse to nuclear weapons to make gains on the ground. NATO clung to a first use option as Western strategists felt doubtful that NATO could fend off a concerted Warsaw Pact conventional attack.

Second, in the 1950s and 1960s, the Soviet Union lagged behind the United States in developing and later deploying such weapons. Third, and from the mid-1970s, Brezhnev's no-first-use pledge seemed to indicate that the Warsaw Pact would avoid, if possible, the use of nuclear weapons. This argument of deterrence using Theatre Nuclear Forces, however, has gained considerable weight since the adoption by Russia of the nuclear-use-for-de-escalation doctrine.

Both Americans and Europeans have seen American nuclear forces deployed in Europe as symbols of American commitment, but many Europeans would have preferred European nuclear weapons. The Non-Proliferation Treaty (NPT) rules that out for all states bar France and the United Kingdom, but the NPT was built on American and British commitments to European defence. Britain's nuclear force, shrunk to its four *Trident* submarines and likely to remain this way in its successor submarine force, does not contain any weapons systems that it can visibly deploy on allied territory. France has such forces with its aircraft and air-launched ASMP missiles, but France has persistently refused to commit her forces to the defence of all NATO or WEU/EU allies in peacetime, and instead has hidden behind vague statements about the enhancement of European defence by the fact that French nuclear weapons are based in Europe (in fact all are based on French soil).¹⁰⁶ This leaves the question of the continued stationing of American NSNW in Europe, a question that is bound to be central to the future security of NATO Europe, and to containing nuclear proliferation despite renewed anxieties about possible direct attacks on NATO territory.

Notes

¹ "Interview with Helmut Schmidt, 1987" (11 December 1987): <http://openvault.wgbh.org/catalog/wpna-986edb-interview-with-helmut-schmidt-1987>. These comments were to American President Jimmy Carter.

² For example, Oliver Meier and Simon Lunn, "Trapped: NATO, Russia, And the Problem of Tactical Nuclear Weapons", *Arms Control Today*, 44/1(2014), 18-24.

³ Not in that order.

⁴ Points 2 and 3 are inversed by Petr Suchy and Bradley A. Thayer, "Weapons as political symbolism: the role of US tactical nuclear weapons in Europe", *European Security*, 23/4(2014), 509-28.

⁵ Ibid.

⁶ See North Atlantic Treaty, Article 5,

http://www.nato.int/cps/sk/natohq/official_texts_17120.htm, accessed on 7 May 2017.

⁷ The Germans probably contributed the concept to NATO strategy that nuclear deterrence had to be a continuous whole – or “seamless garment”, as the British later termed it. Under the influence, ironically, of Catholic theology, “seamless garment” ethical debates about the protection of human life were much discussed from 1983 – Sir Michael Quinlan, a defence official, probably introduced this term into British strategic thinking. “Seamless garment” or “seamless robe” is a reference to the item of clothing last worn by Jesus, John 19:23.

⁸ Christoph Bluth, *Britain, Germany and Western Nuclear Strategy* (Oxford, 1995) and Susanne Peters, *The Germans and the INF Missiles* (Baden Baden, 1990) show that West Germany made a considerable contribution to NATO nuclear strategy, especially from the mid- to late 1960s onwards, in conjunction with Britain. It was little known amongst many West German political scientists, let alone the public at large; see Kurt J. Lank, “Kernwaffen und eine Diplomatie der Friedenssicherung”, *Beiträge zur Konfliktforschung*, 7/4(1977), 130. This ignorance made it possible for critics to argue that NATO was an exclusively American-dominated institution that did nothing to satisfy the needs of the Europeans who depended entirely on Washington.

⁹ The acronym used was “Theatre Nuclear Forces”, not introduced here to avoid confusion with “Tactical Nuclear Weapons”. Tactical implies *military* use; Theatre Nuclear Forces might find use “strategically” for a decapitation strike or a hit on a command centre in a large city.

¹⁰ Beatrice Heuser, “Victory in a Nuclear War? A Comparison of NATO and Warsaw Pact War Aims and Strategies”, *Contemporary European History*, 7/Part 3(1998), 311-28.

¹¹ Robert S. Norris and William M. Arkin, “NATO Nuclear Weapons in Western Europe”, *Bulletin of the Atomic Scientists*, 46/8(1990), 48-49.

¹² Desmond Ball, “The Development of the SIOP, 1960-1983”, in Desmond Ball and Jeffrey Richelson, eds., *Strategic Nuclear Targeting* (Ithaca, NY, 1986), 62-67.

¹³ For similarities between the nuclear missile deployments of the late 1950s-early 1960s and those of the early 1980s, see Thomas Risse-Kappen, “Déjà vu: Deployment of Nuclear Weapons in West Germany – Historical Controversies”, *Bulletin of Peace Proposals*, 14/4(1983), 327-36.

¹⁴ Catherine McArdle Kelleher, *Germany and the Politics of Nuclear Weapons* (NY, 1975), 99, 162.

¹⁵ Arthur J. Olsen, “Larger missiles assured to Bonn”, *NY Times* (23 November 1964). The figures given here incorrectly appear in “miles” not “kilometres”, but see International Institute for Strategic Studies, *The Military Balance 1981-1982* (Dorking, 1981), 108.

¹⁶ Uwe Nerlich, “Theatre Nuclear Forces in Europe”, *Washington Quarterly*, 3/1(1980), 121

¹⁷ Der Bundesminister der Verteidigung, *Weissbuch 1978 Zur Sicherheit der Bundesrepublik Deutschland und zur Entwicklung der Bundeswehr* (Kassel, 1979), 126 ff.

¹⁸ Uwe Nerlich, “Die nuklearen Dilemmas der Bundesrepublik Deutschland”, *Europa Archiv*, 20/17(1965), 644; also see Bluth, *Western Nuclear Strategy*, 226-35.

¹⁹ Günther Gillessen, “Amerikas neue Atom-Doktrin”, *Frankfurter Allgemeine Zeitung* (11 April 1974); Uwe Nerlich, “Nuclear Weapons and East-West Negotiation”, *Adelphi Papers*, 120(1976), 28; “Schlachtfeld Deutschland”, *Der Spiegel* (12 September 1977), 77.

²⁰ Ivo Daalder, *The Nature and Practice of Flexible Response* (NY, 1991), 166; Kristan Stoddart, “Creating the Seamless Robe of Deterrence: Britain’s Role in NATO INF

Modernisation, 1976-1983”, in Leopoldo Nuti, Bernd Rother, Frédéric Bozo, and Marie-Pierre Rey, eds., *The Euromissile Crisis and the End of the Cold War* (Washington DC, 2015).

²¹ There were circa 200 storage sites spread across Western Europe, most in the Central Region.

²² Chiefs of Staff Committee Defence Policy Staff, “United States Nuclear Warheads in Europe. Report by the Directors of Defence Policy”, 9 January 1975, FCO [Foreign and Commonwealth Office Records, The National Archives, Kew] 41/1649.

²³ Ministry of Defence, “Atlantic Nuclear Force. The Size of the British Polaris Force Memorandum”, 20 November 1964, CAB [Cabinet Records, The National Archives, Kew] CAB 130/213, MISC 17/7.

²⁴ Record Group [Department of State Records, formerly Top Secret Foreign Policy Files, 1964-66, NATO. National Security Archives website] 59 Box 22: <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB31/index.html>.

²⁵ The Brussels Treaty of 1948, creating the Western Union, reiterated as the modified Brussels Treaty of 1954, creating the Western European Union, Article V of which became the European Union’s Lisbon Treaty Article 42.7.

²⁶ “Draft Preliminary Report on Phase II of the Study on Follow-On Tactical Use of Nuclear Weapons by NATO”, 17 July 1974, FCO 41/1433.

²⁷ For Warsaw Pact strategy as reflected in its exercises, see Beatrice Heuser, “Warsaw Pact Military Doctrines in the 70s and 80s: Findings in the East German Archives”, *Comparative Strategy*, 12/4(1993), 437-57; idem., “Victory in a Nuclear War?”. Cf. Vojtech Mastny and Robert Byrne, eds., *A Cardboard Castle? An Inside History of the Warsaw Pact, 1955-1991* (Budapest, 2005).

²⁸ This term, or that of NATO planners, strategists, etc, refers collectively to the officials and military personnel mainly in the governments of NATO member states but also in NATO Headquarters and in SHAPE who collectively dealt with these matters.

²⁹ “Draft Preliminary Report on Phase II”.

³⁰ Interview with Sir Michael Quinlan (25 November 2007). See also Kristina Spohr-Readman, “Germany and the Politics of the Neutron Bomb, 1975-1979”, *Diplomacy & Statecraft*, 21/2(2010), 259-85.

³¹ Taskforce 10 of NATO’s Long-Term Defence Planning group, which was elevated to a High Level Group. The Task Force’s role is covered in David M. Walsh, *The Military Balance in the Cold War: US Perceptions and Policy, 1976-85* (Abingdon, 2007), 114-16, 127-28.

³² Christoph Bluth, “British-German Defence Relations, 1950-80: A Survey”, in Karl Kaiser and John Roper, *British German Defence Co-operation: Partners within the Alliance* (London, 1988), 28-29; Bluth, *Western Nuclear Strategy*, 230. Suggestions exist of Task Force 10 reluctantly added. Interview with Sir Michael Quinlan (3 August 2006).

³³ Michael Quinlan, “How much striking power is enough for British strategic nuclear deterrence?”, lecture given at Windsor (February 1982), Quinlan [Michael Quinlan Papers, Liddell Hart Archive, King’s College, London].

³⁴ Hunt to Cartledge, 11 May 1979, PREM [Prime Ministers Office Records, The National Archives, Kew] 19/15; <https://history.state.gov/milestones/1969-1976/salt>, accessed on 7 May 2017.

³⁵ Lothar Ruehl, “Die Auswirkungen von SALT-2 auf Europa”, *Europäische Wehrkunde*, 27/12(1978), 623.

³⁶ “Interview with Helmut Schmidt, 1987”.

³⁷ Helmut Schmidt, “The 1977 Alastair Buchan Memorial Lecture”, *Survival*, 20/1(1978), 4-5. On the speech, see Kristina Spohr-Readman, “Conflict and Co-operation in *intra*-Alliance Nuclear Politics: Western Europe, America and the Genesis of NATO’s Dual-Track Decision, 1977-1979”, *Journal of Cold War Studies*, 13/2(2011), 40-41.

³⁸ See for example, Schmidt quoted in Karl Feldmeyer, “Schmidts taktischer Erfolg mit der Nachrüstung”, *Frankfurter Allgemeine Zeitung* (7 December 1979); Schmidt speech at the SPD Land-Congress, Hamburg (11 April 1980) *Europa Archiv*, 35/15(1980), D427; “Speech of Defence Minister Hans Apel at XVIth Wehrkunde Conference in Munich“, *Bulletin*, 22(February 1979), 192; “Die Opposition: Das Gleichgewicht ist gestört; Apel: Die Nato strebt Parität an”, *Frankfurter Allgemeine Zeitung* (9 March 1979); Ambassador Friedrich Ruth, “Sicherheitspolitik der NATO: Abschreckung und Rüstungskontrolle”, *Europa Archiv*, 37/5(1982), 137.

³⁹ K.-Peter Stratmann, “Das ‘eurostrategische’ Kräfteverhältnis. Zweifelhafte Bewertungen als Folge der Anwendung unterschiedlicher Kriterien”, *Europa Archiv*, 36/13(1981), 387-98 describes the difficulties created by this approach. Cf. Lt. Gen. Hans Hinrichs, “Warum Nachrüstung statt Umrüstung?”, *Europäische Wehrkunde*, 31/12(1982), 48; Gerhard Wettig, “Das Problem des militärischen Gleichgewichts”, *Aussenpolitik*, 33/4(1982), 337-45. For examples of this argument being used, see Beatrice Heuser, *Nuclear Mentalities? Strategies and Beliefs in Britain, France and the FRG* (London: Macmillan, and New York: St Martin’s Press, 1998), Chapter 4; Hoimar von Ditfurth, “Real ist nur die eigene Angst”, *Der Spiegel* (6 June 1983), 52 ff.

⁴⁰ “Hat die UdSSR mit den SS-20-Raketen vorgerüstet?”, *Unsere Zeit* (10 February 1981).

⁴¹ NATO Documents Webpage: http://www.nato.int/cps/en/natolive/official_texts_27040.htm.

⁴² For NATO’s successive strategies, see Beatrice Heuser, *NATO, Britain, France and the FRG: Nuclear Strategies and Forces for Europe, 1949-2000* (Houndmills, 1997), Chapter 2.

⁴³ C.W. Sherwin, “Securing Peace through Military Technology” [originally 1956], reprinted in Philip Bobbit, Lawrence Freedman, and Gregory Treverton, eds., *US Nuclear Strategy – A Reader* (London, 1989), 135.

⁴⁴ See Beatrice Heuser, “Containing Uncertainty: Options for British Nuclear Strategy”, *Review of International Studies*, 19/3(1993), 245-67.

⁴⁵ Chiefs of Staff Committee Defence Policy Staff. “United States Nuclear Warheads in Europe Report by the Directors of Defence Policy”, 9 January 1975, FCO 41/1649.

⁴⁶ “Draft Improving the Effectiveness of NATO’s Theatre Nuclear Forces Britain Comments on the US Paper NMC 10 of 15 December 1975”, 16 March 1976 DEFE [Ministry of Defence Records, The National Archives, Kew] 68/353.

⁴⁷ Ibid.

⁴⁸ Nerlich, “Theatre Nuclear Forces”, 103.

⁴⁹ Ibid., 106, 118.

⁵⁰ For example, NATO’s MC14/2 (1958).

⁵¹ General Michel Fourquet, “Employ des différents systèmes de force dans le cadre de la stratégie de dissuasion”, *Revue Défense Nationale*, 25/5(1969), 757-67.

⁵² Beatrice Heuser, “Réflexions sur les représailles massives et la riposte graduée”, *Revue d’histoire diplomatique*, 102/3-4(1992), 15-30.

⁵³ David S. Yost, *France's Deterrent Posture and Security in Europe*, Part I: *Capabilities and Doctrine*, *Adelphi Papers* No. 194 (London, 1984/1985), 55; M. Long, E. Balladur, and F. Leotard, *Livre Blanc sur la Défense* (Paris, 1994), 57.

⁵⁴ 16th Chiefs of Staff meeting of WINTEX 1979 (22 March 1979), AIR [Air Ministry Records, The National Archives, Kew] 8-2855, p.2

⁵⁵ 4th Meeting of the War Cabinet, 19 March 1981, CAB 130/1169, MISC 53(81).

⁵⁶ Press Briefing (17 December 1996): http://www.nato.int/cps/en/natohq/opinions_25076.htm?selectedLocale=en.

⁵⁷ On defining “first use” in practice, see Heuser, “Warsaw Pact Military Doctrines”.

⁵⁸ Stephen Blank, “Russia and Nuclear Weapons”, in idem., ed., *Russia's Nuclear Weapons: Past, Present, and Future* (Carlisle, PA, 2011), 326-29.

⁵⁹ Valéry Giscard d'Estaing, “Allocution” [1 June 1976], *Revue Défense Nationale*, 32/7(1976), 15.

⁶⁰ General Guy Méry, “Les trois théories de l'arme à neutrons”, *Revue Défense nationale*, 38/3(1982), 13.

⁶¹ Anonymous, “Les forces nucléaires tactiques”, *Stratégie et défense*, 5(1980), 29.

⁶² For a summary of the debate, see Henri Meyrowitz, “La France à la recherche d'une stratégie nucléaire”, *Revue politique et parlementaire*, 864(1976), 70 ff, 74. Raymond Aron believed in the greater influence of differentiated nuclear arsenals, but continued to doubt that France could develop the necessary breadth and size. See R. Aron, “La notion de rapport de forces a-t-elle encore un sens, à l'ère nucléaire?”, *Revue Défense nationale*, 32/1(1976), 17, 20; Jean Klein, “Stratégie de non-guerre et hypothèses de conflit nucléaire”, *Ibid.*, 35/5(1979), 17-46; Jacques

Lechat, “L’arme à neutrons, complément de la dissuasion”, *Ibid.*, 38/3(1982), 23-26 ; Roger Bloch, “A propos de l’armement nucléaire tactique, un choix s’impose”, *Stratégie et défense*, 4(November 1979), 22-23.

⁶³ Colonel Marc Geneste, “The terrible strategy of terror: a French perspective”, *Strategic Review*, 7/2(1979), 23-31.

⁶⁴ Pierre Lellouche, “France and the Euromissiles: The Limits of Immunity”, *Foreign Affairs*, 62/2(1983-1984), 324; Michel Tatu, “Les sept épées”, *Cahiers de la Fondation pour les études de Défense nationale*, 29(1983), Chapter 3 *passim*.

⁶⁵ Marcel Duval, “L’arme à neutrons, pour quoi faire?”, *Revue Défense nationale*, 383(1982), 8; Jacques Chirac, “Le rôle de la France dans les relations est-ouest”, *Politique étrangère*, 49/3(1984), 682; Léo Hamon, “Le Sanctuaire désenclavé?”, *Cahiers de la Fondation pour les études de Défense nationale*, 23(1982), *passim*.

⁶⁶ Joël Le Theule, “La défense en question”, *Paradoxes*, 8(June-July 1976), 33-36; Jean Klein, “A propos de la bombe à neutrons?”, *Stratégie et défense*, 1(May 1978), 21 ff. See the complaints of Geneste, who pleaded for a move from the “last warning shot” to denial of enemy advance through the use of neutron bombs (*coups d’arrêt*), “La bombe à neutrons, la défense de l’Europe et la Flexible Response”, *Revue Défense Nationale*, 364(1977), 14; Jacques-Marie Denis, “La France et le problème de la riposte ‘flexible’ ou ‘graduée’”, *Revue Défense nationale*, 372(1981), 90.

⁶⁷ *Le Point*, 291(1978).

⁶⁸ “Carter première victime de la bombe à neutrons”, *Ibid.*

⁶⁹ Editor's note on J.-B. Margeride, "Qu'est-ce que l'arme à neutrons?", *Revue Défense nationale*, 34/11(1978), 95.

⁷⁰ General Guy Lewin, "Réflexions sur la défense de la France et l'avenir de la dissuasion nucléaire", *Stratégique*, 34(2e Trim. 1987), 58 ff. Also see Lellouche, "France and the Euromissiles".

⁷¹ Gouvernement de la République française, *La politique de défense de la France* (Paris, 1979), 8.

⁷² Guy Lewin, "A propos du 'Blitzkrieg nucléaire' et du bon usage de l'arme nucléaire tactique selon Marc Geneste", *Revue Défense nationale*, 33/5(1977), 99-102; idem. "L'arme à neutrons: caractéristiques et emploi", *Ibid.*, 38/3(1982), 15-22; idem., "L'arme à neutrons? Pourquoi? Comment?", *Ibid.*, 44/5(1988), 75-77.

⁷³ Pierre-M. Gallois, "Armes à radiations renforcées: essai d'un bilan", *Ibid.*, 38/3(1982), 31-40.

⁷⁴ Hans-Hagen Bremer, "Frankreichs Atomraketen sind auf den Nachbarn gerichtet", *Stuttgarter Zeitung* (21 October 1982).

⁷⁵ *Journal Officiel*, Assemblée Nationale, Compte Rendu Intégral, No.79, 3e Séance (7 November 1990), 4933

⁷⁶ Also known as "keys to the cupboard". These "Dual Key" arrangements required political authorisation to release the nuclear munitions from American custody into Allied hands. Kristan Stoddart, *Losing an Empire and Finding a Role Britain, the USA, NATO and Nuclear Weapons 1964-1970* (Houndmills, 2012), 199-227; idem., *The Sword and the Shield, Britain, the USA, NATO and Nuclear Weapons 1970-1976* (Houndmills, 2014), 130, 206-08.

⁷⁷ Ministry of Defence Operational Requirements Committee, 5 March 1964, DEFE 68/81.

⁷⁸ Richard Moore, *Nuclear Illusion, Nuclear Reality: Britain, the United States and Nuclear Weapons, 1958-1964* (Houndmills, 2010), Chapter 2.

⁷⁹ Chiefs of Staff Committee Defence Policy Staff, “United States Nuclear Warheads in Europe. Report by the Directors of Defence Policy”, 9 January 1975, FCO 41/1649.

⁸⁰ “Nuclear Planning Group: The History of the NPG”, 7 June 1972, DEFE 11/471.

⁸¹ “Flexible Response” was confusingly used, at the time, for three separate strategies: first for MC 14/2 (1957), then for the American initiative of the early 1960s aimed at preparing NATO to fend off a Warsaw Pact attack purely conventional, and finally for MC14/3 (1968), where the name stuck. See Heuser, *NATO, Britain, France*, Chapter 2.

⁸² “Draft Improving the Effectiveness of NATO’s Theatre Nuclear Forces Britain. Comments on the US Paper NMC 10 of 15 December 1975”, 16 March 1976, DEFE 68/353.

⁸³ George Buis (pour) and François de Rose (contre), “Une défense européenne”, *Politique internationale*, 11(Spring 1981), 55; see also General François Valentin, “L’avant-garde de la dissuasion”, *Revue Défense nationale*, 37/3(1981), 33-38 favouring closer co-ordination with NATO or at least the European neighbour(s).

⁸⁴ Marcel Duval, ed., “La crise des Euromissiles”, *Revue Défense nationale*, 39/8(1983), 62.

⁸⁵ Jürgen Liminski, “Geneste: Sicherheitspolitik ohne enge Abstimmung mit den USA gefährlich”, *Die Welt* (25 October 1982); Marc Geneste, “Deterrence Through Terror or Deterrence Through Defence”, *Armed Forces and Society*, 8/2(1982), 236.

⁸⁶ See Mitterrand’s famous interview in *Der Stern* (8 July 1981). Often forgotten in this context is Giscard’s active involvement in helping to catalyse the “Dual Track” decision at the January 1979 Guadeloupe summit that he hosted.

⁸⁷ Heuser, *NATO, Britain, France*, Chapter 6.

⁸⁸ This in turn worried the Soviets, who feared a German finger on the nuclear trigger: Strong, “The Soviet Union and the MLF”, 14 October 1964, DEFE 31/54

⁸⁹ Leopoldo Nuti, “Italy and the Nuclear Choices of the Atlantic Alliance, 1955-1963”, in Beatrice Heuser and Robert O’Neill, eds., *Securing Peace in Europe, 1945-1963* (Houndmills, 1992).

⁹⁰ Heuser, *NATO, Britain, France*, 154-56.

⁹¹ Italy, too, was subject to these restrictions as part of the peace treaty signed after the Second World War. Ibid., 124.

⁹² SZ [Solly Zuckerman?] to Secretary of State, 18 November 1964, CAB 164/713.

⁹³ Heuser, *NATO, Britain, France*, Chapter 6.

⁹⁴ Maurice Leman, “Les neutrons: l’arme anti-invasion pour une défense européenne”, *Politique étrangère*, 46/2(1981), 425.

⁹⁵ American Embassy [London] to State Department, “British Reaction to Reykjavik: As the dust settles, perspective returns”, 17 November 1986. NSC [National Security Council Papers, Ronald Reagan Presidential Library, Simi Valley, CA] European & Soviet Directorate Box 90902: <http://www.margarethatcher.org/document/110566>; Karl Kaiser, “Le débat sur la stratégie de l’OTAN après Reykjavik”, *Politique étrangère*, 51/4(1986/1987), 1063; “Glatter Selbstmord”, *Der Spiegel* (1 December 1986).

⁹⁶ Margaret Thatcher, *Downing Street Years* (NY, 1993), 471.

⁹⁷ Michael Forster, “Gesamtkonzept”, *Sistra*, 11/87(1988), 6.

⁹⁸ “Kohl: Zonen minderer Sicherheit darf es nicht geben”, *Frankfurter Allgemeine Zeitung* (8 May 1987).

⁹⁹ Thatcher, *Downing Street Years*, 771.

¹⁰⁰ Pascal Boniface, “La défense et la cohabitation”, *Le trimestre du Monde*, 2(2e term 1988), 56.

¹⁰¹ Maurice Faivre, *Les nations armées: De la guerre des peuples à la guerre des étoiles* (Paris, 1988), 83 ff.

¹⁰² Emmanuel de Richoufftz, *Encore une Guerre de retard?* (Paris, 1992), 73.

¹⁰³ John Simpson, “The United Kingdom and the Nuclear Future: The Strength of Continuity and the Chance for Change”, *Nonproliferation Review*, 14/2(2007), 233.

¹⁰⁴ Barry Blechman and Laicie Heeley: “B61 Life Extension Program: Costs and Policy Considerations”, *Stimson Organisation Issue Paper* (August 2016), <https://www.stimson.org/sites/default/files/file-attachments/B61-Life-Extension-Program.pdf>, accessed on 7 May 2017.

¹⁰⁵ “Deployment of Russia’s armaments in Kaliningrad region limits NATO’s capabilities — expert”, *Tass* (20 February 2016): <http://tass.com/defense/855511>.

¹⁰⁶ For the most recent authoritative summary of the French position, see Nicolas Roche: *Pourquoi la dissuasion* (Paris: PUF, 2017), 98-120.